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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/840,057 | 05/06/2004 | John M. Mulloy | 29766-76558 | 6632 |
| 23643 | 7590 | 05/10/2005 | EXAMINER | |
| BARNES & THORNBURG 11 SOUTH MERIDIAN INDIANAPOLIS, IN 46204 | | | TRIEU, THAI BA | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3748 | |

DATE MAILED: 05/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/840,057

Applicant(s)

MULLOY ET AL.

Examiner

Thai-Ba Trieu

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-13, 15-23 and 26-28 is/are rejected.
- 7) ☒ Claim(s) 9, 14, 24 and 25 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 May 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/717,232.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>05/06/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

The listing of references of **US Patent Number 5,044,880** (Page 8, line 11), and **British Patent Application No. 0407978.6 filed on April 8, 2004** (Page 16, lines 21-22) in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the **"swinging the plurality of guide vanes"** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

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and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show ***"vane support ring 11"*** (See Page 8, line 21); ***"a temperature detector 2100"*** (See Page 9, line 14) as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "**12**" has been used to designate both "**support pins 12**" (See Page 8, lines 21-22) and "**turbine wheel 12**" (See Page 8, line 26). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. Figure **1** should be designated by a legend such as -- **Prior Art** -- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid

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abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

- On Page 3, line 22, "***amethod***" should be replaced by -- **a method** --.
- On page 12, line 7, "***nozzle ring 6***" should be replaced by -- **nozzle ring 8** -- (for correcting typo error).

Appropriate correction is required.

Claim Objections

Claim 7, 14-15, and 24-25 are objected to because of the following informalities:

- In claims 7, 14, and 15, line 2, "***renters***" should be replaced by -- **re-enters** -- (for correcting typo error).
- In claim 24, line 4, "***renters***" should be replaced by -- **re-enters** -- (for correcting typo error).
- In claim 25, line 5, "***renters***" should be replaced by -- **re-enters** -- (for correcting typo error).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 26 and its depend claim 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically,

- In claim 26, the recitation of "normally not substantially" renders the claim indefinite, since it is not clear that how the fluid flow communication between the flow bypass path and the exhaust gas is considered to be normal, but not substantial. Applicant is required to shown and explain this fluid flow communication.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-6, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kolmanovsky et al. (Patent Number 6,314,735 B1).

Regarding Claims 1-3 and 5-6, Kolmanovsky discloses a method comprising:

operating a turbocharger (26, 16) including a variable geometry turbine (16) having an inlet passage (not Numbered) to the turbine with a fluid flow area, the fluid flow area having a normal size for an internal combustion engine

operating in a normal operating range (See Figures 1, 1A, 1B, 2, and 5, Column 3, lines 39-43);

reducing the size of the fluid flow area from the normal size to reduced size for exhaust gas heating (See Figures 1A, 1B, and 8, Column 2, lines 66-67, Column 3, lines 1-16, Column 4, lines 4-13); and

bypassing (via arrow of Figures 1A and 1B) a portion of the exhaust gas entering the inlet passage around the guide vanes (17) of the variable geometry turbine (See Figures 1A and 1B);

wherein said bypassing the portion of the exhaust gas flows internally within the turbocharger (See Figures 1A and 1B);

wherein said reducing includes moving a portion (not shown) of the variable geometry turbine (16) and includes rotation of a plurality of guide vanes (See Figure 1);

wherein the fluid flow area has a maximum flow area, and wherein the flow area corresponding to said reduced size is within a range of about zero percent to about twenty-five percent of the maximum flow area (See Figures 2 and 5).

Note that Kolmanovsky does not disclose moving a portion of the variable geometry turbine. However, as Kolmanovsky discloses in Column 3, lines 6-16 that a VGT has electronically controlled variable position inlet vanes 17 ... control the position of the turbine inlet vanes 17, shown open in Fig. 1A, and closed as shown in Figure 1B,

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thus inherently, the turbine inlet vanes 17 must have/include a portion in order that the turbine inlet vanes 17 move/rotate from open position to closed position or vice versa.

Regarding claims 8 and 10, Kolmanovsky further discloses determining the temperature of the exhaust gas passing from an outlet of the variable geometry turbine (via sensor 29), and further includes operatively controlling said reducing based upon whether the temperature of the exhaust gas passing from the outlet of the variable geometry turbine satisfies a threshold temperature condition (See Figure 8, Column 4, lines 19-39);

passing the exhaust gas from the variable geometry turbine to an after-treatment system (27) (See Figure 1); and

determining the temperature of the exhaust gas in the after-treatment system (27), and operatively controlling said reducing based upon whether the temperature of the exhaust gas in the after-treatment system satisfies a threshold temperature condition (See Column 4, lines 19-39).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 7, 12-13, 15-18, and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanovsky et al. (Patent Number 6,314,735 B1), in view of Walsham (Patent Number 6,203,272 B1).

Regarding claims 4 and 7, Kalmanovsky discloses the invention as recited above; however, fails to disclose said moving including axial movement of a nozzle ring, and the portion of the exhaust gas from said bypassing reentering the rest of the exhaust gas flowing to the turbine wheel from the inlet passage at a steep angle or substantially perpendicular thereto.

Walsham teaches that it is conventional in the variable geometry turbine art, to utilize said moving including axial movement of a nozzle ring (5); and the portion of the exhaust gas from said bypassing reentering the rest of the exhaust gas flowing to the turbine wheel from the inlet passage at a steep angle or substantially perpendicular thereto (See Figures 1-3, Column 2, lines 49-58).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized said moving including axial movement of a nozzle ring, as taught by Walsham, to improve the efficiency of the Kalmanovsky device.

Regarding claims 12-13, 15, 16-18, and 20, Kalmanovsky discloses the invention as recited of claim 1, and further discloses passing the exhaust gas from the variable geometry turbine to an after-treatment system (27) (See Figure 1); and determining the temperature of the exhaust gas in the after-treatment system (27), and operatively controlling said reducing based upon whether the temperature of the

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exhaust gas in the after-treatment system satisfies a threshold temperature condition (See Column 4, lines 19-39); and wherein the fluid flow area has a maximum flow area, and wherein the flow area corresponding to said reduced size is within a range of about zero percent to about twenty-five percent of the maximum flow area (See Figures 2 and 5).

However, fails to disclose moving a nozzle ring, wherein in said moving the nozzle ring moves in an axial direction and wherein the portion of the exhaust gas flows within the turbocharger; and at least one bypass fluid flow path, and the portion of the exhaust gas from said bypassing reentering the rest of the exhaust gas flowing to the turbine wheel from the inlet passage at substantially perpendicular thereto

Walsham teaches that it is conventional in the variable geometry turbine art, to utilize moving a nozzle ring (5), wherein in said moving the nozzle ring (5) moves in an axial direction and wherein the portion of the exhaust gas flows within the turbocharger(See Figures 1-2, Column 2, lines 49-58);

wherein the portion of the exhaust gas from said bypassing reentering the rest of the exhaust gas flowing to the turbine wheel from the inlet passage at substantially perpendicular thereto (See Figure 3);

wherein said moving opens at least one bypass fluid flow path (via 24) in fluid communication with the exhaust gas within the inlet passage, and wherein the bypass fluid flow path is normally blocked when the fluid flow area is of the normal size (See Figures 1-2, Abstract .

wherein in said bypassing the portion of the exhaust gas flows through the at least one bypass fluid flow path (via 24) (See Column 4, lines 23-31).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized moving a nozzle ring, wherein in said moving the nozzle ring moves in an axial direction and wherein the portion of the exhaust gas flows within the turbocharger, at least one bypass fluid flow path, and wherein the portion of the exhaust gas from said bypassing reentering the rest of the exhaust gas flowing to the turbine wheel from the inlet passage at substantially perpendicular thereto, as taught by Walsham, to improve the efficiency of the Kolmanovsky device.

Claims 5, 21-23, and 28 rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanovsky et al. (Patent Number 6,314,735 B1), in view of Hasegawa (Patent Number JP 61 001829 A).

Kalmanovsky discloses the invention as recited above, and further discloses passing the exhaust gas from the variable geometry turbine to an after-treatment system (27) (See Figure 1); and determining the temperature of the exhaust gas in the after-treatment system (27), and operatively controlling said reducing based upon whether the temperature of the exhaust gas in the after-treatment system satisfies a threshold temperature condition (See Column 4, lines 19-39).

However, fails to disclose said moving including rotation of a plurality of guide vanes, swinging the plurality of guide vanes; said flowing including bypassing the portion of the exhaust gas around the plurality of guide vanes; in said swinging the radial at least a portion of each of the plurality of guide vanes position of is changed;

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Hasegawa teaches that it is conventional in the turbo-supercharger art, to utilize said moving including rotation of a plurality of guide vanes (See Figures 2-4); swinging the plurality of guide vanes (See Figures 2-4, and Abstract); said flowing including bypassing the portion of the exhaust gas around the plurality of guide vanes (See Figures 2-4); and in said swinging the radial at least a portion of each of the plurality of guide vanes position of is changed (See Figures 2-4).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized said moving including rotation of a plurality of guide vanes, swinging the plurality of guide vanes, said flowing including bypassing the portion of the exhaust gas around the plurality of guide vanes; and in said swinging the radial at least a portion of each of the plurality of guide vanes position of is changed, to improve the efficiency of the Kolmanovsky device.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanovsky et al. (Patent Number 6,314,735 B1), in view of Hirota et al. (Pub. Number US 2002/0170287 A1).

Kalmanovsky discloses the invention as recited above; however, fails to disclose the threshold temperature condition being within a range of about 500⁰F to about 700⁰F.

Hirota teaches that it is conventional in the Exhaust gas purification device art, to utilize the threshold temperature condition being within a range of about 500⁰F to about 700⁰F (See Paragraph [0002], lines 9-10).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the threshold temperature condition being within a

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range of about 500⁰F to about 700⁰F, since this would have been the normally considerably temperature of the exhaust gas.

Note that the temperature of 500⁰F-700⁰F is fairly equal to the temperature of 260⁰C- 371⁰C.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanovsky et al. (Patent Number 6,314,735 B1), in view of Walsham (Patent Number 6,203,272 B1), and further in view of Hirota et al. (Pub. Number US 2002/0170287 A1).

The modified Kalmanovsky discloses the invention as recited above; however, fails to disclose the threshold temperature condition being within a range of about 500⁰F to about 700⁰F.

Hirota teaches that it is conventional in the Exhaust gas purification device art, to utilize the threshold temperature condition being within a range of about 500⁰F to about 700⁰F (See Paragraph [0002], lines 9-10).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the threshold temperature condition being within a range of about 500⁰F to about 700⁰F, as taught by Hirota, since this range would have been the normally considerably temperature of the exhaust gas of diesel engines.

Note that the temperature of 500⁰F-700⁰F is fairly equal to the temperature of 260⁰C- 371⁰C.

Allowable Subject Matter

Claim **9, 14, and 24-25** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims **26-27** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The IDS (PTO-1449) filed on May 06, 2004 has been considered. An initialized copy is attached hereto.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Chamoto et al. (US Patent Number 6,851,256 B1) disclose an exhaust gas emission control device.
- Stiglic et al. (US Patent Number 5,050,376) disclose a control system for diesel particulate trap regeneration.
- Hardy (US Patent Number 4,835,963) discloses a diesel particulate trap regeneration system.
- Jinnai et al. (Patent Number 6,669,442 B2) disclose a method and device for assembling and adjusting capacity turbine.
- Garrett (Patent number 6,779,971 B2) discloses a turbine.

- Hosoya et al. (Patent Number JP 2000220445 A) disclose an exhaust emission control device having a variable geometry turbocharger.

- Yasuma et al. (Patent Number JP 06 235319 A) disclose a turbocharged internal combustion engine equipped with reduced type denitration catalyst


- Ogura (Patent number JP 03 249305 A) discloses a turbo-supercharger.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
May 04, 2005



Thai-Ba Trieu
Primary Examiner
Art Unit 3748